Japan: Machine Tools

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Summary

Japan is the world's largest producer of machine tools. It produces approximately one-fifth of the world's value of machine tools, estimated at $14.4 billion, up 7%, in 2007. It is also the second-largest consumer, after only China (Gardner Publications).

In the metal-cutting machine tools segment in 2007, U.S. suppliers ranked third at 14% of the imported products after Germany's 25% and China's 15%. Switzerland was the fourth largest supplier at 12%.

Despite economic uncertainties including high oil prices, a high level of machine tool orders is expected to continue through 2008 due to strong overseas demand (Japan Machine Tool Builders' Association).

U.S. suppliers of machine tools and related equipment are encouraged to consider partnering with either a Japanese manufacturer with complementary product lines or searching for a trading firm or distributor specializing in machinery import and sales. One way to review competitors and, at the same time, meet with potential partners is to schedule your visit to Japan during a major industry trade show, such as JIMTOF 2008, which will be held October 30 - November 4, 2008, in Tokyo.

Market Demand

According to the Japan Machine Tool Builders' Association (JMTBA), the machine tool orders of domestic industry in 2007 amounted to approximately 1.6 trillion yen or $13.6 billion, up 11% over the previous year and a fifth year-on-year growth, due to strong exports to major overseas markets excluding the U.S. Domestic demand leveled off, sustained by capital investment in heavy industries.

It expects the high level of machine tool orders to continue in 2008, primarily due to strong overseas demand from Asia, Europe and newly industrialized countries including India, Russia and South America, despite uncertainties involving high oil prices, slow housing starts in Japan and subprime mortgage loan issues in the U.S.

As for domestic orders, the machine tool industry is bracing for weakened demand to continue in 2008. However, it also expects stable orders from continuing capital investments in heavy industries including construction machinery, power generation, aerospace and shipbuilding, regardless of weak demand from automotive industries.

Despite the weakening of domestic demand from a protracted recovery by the automotive industry, imported machine tools sustained high volume of orders at 90,598 million yen in 2007, down 4%, from the previous year's record high level, or at $768 million, down 11% on a U.S. dollar basis. This indicates that U.S. and European-made machine tools have established their strong presence as specialized machine tools with advanced technology and high quality among domestic clientele in Japan's manufacturing industries.

Market Data

In 2007, the domestic production of machine tools (metal cutting and forming/forging machines) amounted to 1,660 billion yen or $14 billion, up 7%, whereas exports leveled off to 1,049 billion yen, down 2%, and imports declined by 4% to 91 billion yen. The past three years' data follows:

(in million yen)	2005	2006	2007
Production	1,417,145	1,547,965	1,660,145
Export	960,785	1,072,240	1,048,781

Import	75,020	94,410	90,598
Total Market	531,380	570,135	701,962
(in million USD)	$4,920	$5,183	$5,949
U.S. Share of Imports	12.9%	17.4%	13.1%

Exchange rates: 108 yen/USD in 2005; 110 yen/USD in 2006; 118 yen/USD in 2007
[Source: Ministry of Economy, Trade and Industry; Ministry of Finance; Japan Machine Tool Importers' Association]

According to the Japan Machine Tool Importers' Association (JMTIA), the imports of metal cutting machines and metal forming/forging machines, excluding dry etching machines, totaled 90,598 million yen or $768 million in 2007, down 4%, from the previous year's record high volume.

The leveling off of imports in 2007may be an indication of a deceleration of capital equipment orders in the auto and IT industries. However, due to the past five years' continuous expansion in machine tool orders, the 2007 level was still high, up 130% over the lowest point in 2002.

In 2007, of all metal cutting machine tools imported to Japan, valued at $615 million, grinding, lapping and honing machines increased by 14% to $130 million; electric discharge machines (EDMs) including the wire-cut type expanded by 4% to $95 million; turning machines increased by 37% to $82 million; and sawing and threading machines expanded by 7% to $33 million. However, laser-operated machines dropped by 27% from the 2006 high volume to $104 million; gear cutting, grinding and finishing machines dropped by 35% to $59 million; machining centers decreased by 2% to $38 million; and milling machines shrank by 44% to %23 million.

Of metal cutting machine tools, Germany led the imported products market at 25%, followed by China at 15%, U.S. at 14%, Switzerland at 12%, Thailand at 11%, Taiwan at 8%, Korea and Singapore at 4% each, France at 2%, and Italy and UK at 1% each. Of the major importing countries, only Germany and China increased imports of metal cutting machine tools by 6% and 27%, respectively, over the previous year.

By segment, the market share of the U.S. products and some other third-country imports are as follows:

Laser-operated machines: Total market $104 million
U.S., 38%; Germany, 24%; Switzerland, 24%.

Grinding, lapping, honing machines: Total market $130 million
U.S., 7%; Germany, 30%; Switzerland, 19%.

EDMs incl. wire-cut: Total market $95 million
China, 42%; Thailand, 42%; Switzerland, 7%.

Turning machines: Total market $82 million
U.S., 2%; China, 44%; Taiwan, 17%.

Gear cutting, finishing machines: Total market $59 million
U.S., 20%; Germany, 55%; Switzerland, 22%.

Sawing, threading machines: Total market $33 million
U.S., 17%; Germany, 27%; Taiwan, 24%.

Machining centers: Total market $38 million
U.S., 8%; Germany, 34%; Taiwan, 26%.

Milling machines: Total market $23 million
U.S., 1%; Germany, 45%; France, 33%.

Also, in metal forming and forging machines, valued at $153 million, Germany ranked first at 24%, followed by Korea at 12%, U.S. at 11%, China, Taiwan and Austria at 9% each, Switzerland and Italy at 8% each, and France at 5%.

In a separate category, imports of semiconductor wafers, devices and flat-panel displays manufacturing machines amounted to $2,376 million in 2007, of which the U.S. accounted for approximately 70% of this special-purpose machinery segment.

Best Prospects

According to News Digest Publishing's industry journals, despite a weakening of domestic demand, the Japanese market for machine tools and peripheral equipment is thriving due to robust capital investment in heavy industries including construction machinery, power generation, aerospace and shipbuilding. Major domestic industry goals are focused on cost efficiency, pollution control and manufacturing efficiency.

Automotive and construction machinery end-users require machine tools to meet emission control requirements and demand further space savings in machine tool configuration. In addition to the expansion in production capability, the end-users are searching for new models to shorten the time required for production and preparation, leading to further operational efficiency. New product offerings include multi-functional machine tools, 5-axis NC machining centers, EDMs, collision-proof software system, and remote repair and maintenance services to worldwide customers.

Also, ultraprecision machining is in increasing demand by the Japanese electronics industry as core technology to produce high quality, ultraprecision and ultra fine components for electronic and optical devices on a nano-scale, in the Japanese electronics industry, which is estimated at some 50 trillion yen or approximately 10% of the domestic GDP.

As the market data show, imported machine tools have established special-purpose segments in the machine tools market, including large-scale work machine tools for the aerospace industry. U.S. manufacturers are highly competitive in laser-operated machine tools and gear cutting machine tools, in addition to the drying-etching machines and water-jet cutting technology.

The potential for imported machine tools to make further inroads into Japanese market may lie in seeking specialized niche segments where imported machine tools have advantage over currently available models and ensuring that companies are capable of offering post-sales repair and maintenance service.

Key Suppliers

The eight major machine tool manufacturers account for approximately 40% of the domestic orders in Japan. These are: Makino Milling Machine (www.makino.co.jp/); Mori Seiki (www.moriseiki.com/); Okuma (www.okuma.co.jp/); OKK (www.okk.co.jp/); Toshiba Machine (www.toshiba-machine.co.jp/); JTECT (www.jtect.co.jp/); Tsugami (www.tsugami.co.jp/); and Mitsubishi Heavy Industries (http://www.mhi.co.jp/koU.S.ku/).
Machine tool orders by these key suppliers set the trends in Japan's machine tool industry and are regularly reported in the Nikkan Kogyo Shimbun, an industrial business daily.

Some 50 member firms of the Japan Machine Tool Importers' Association (JMTIA) represent approximately 500 imported brands of machine tools and related equipment. Major overseas suppliers with a local presence are: AgieCharmilles (www.agie-charmilles.com/); DMG (www.gildemeister.com/); Gleason (www.gleason.com/); Haas Automation (http://www.itcm.co.jp/haas/); Klingelnberg (www.klingelnberg.com/); Marposs (www.marposs.com/); Reishauer (www.reishauer.com/); System 3R (www.system3r.com/); Vollmer (www.vollmer.de/); Walter (www.walter-ag.de/); Blazer Swisslube (www.blazer.com/); Delcam (www.delcam.com/); Erowa (www.erowa.com/); Ina Bearing (www.ina.de/); Mahr (www.mahr.com/); and Rittal (www.rittal.com/).

Prospective Buyers

According to the Japan Machine Tool Builders' Association (JMTBA), the total machine tool orders in 2007 amounted to $13.6 billion, of which domestic orders accounted for 46% and exports, 54%. Of the domestic orders as 100%, the major end-user industries are: general machinery, 44% (die and mold fabricators, 8%); autos, 29% (auto parts, 13%); electrical machinery, 6%; precision machinery, 4%; shipbuilding and transport equipment, 4%; metal products, 3%; and steel and non-ferrous metals, 2%.

Although the weakening of domestic orders is generally forecast in 2008, the Nikkan Kogyo Shimbun reports domestic machine tool makers' expectations that sustained capital investments will continue in heavy industries, such as construction machinery, power generation, aerospace and shipbuilding.

The JMTBA released on July 17, 2008, that the half-year machine tool orders in 2008 showed a 0.4% increase over the year-earlier period record amount at 781.9 billion yen or $7.3 billion, due to domestic demand from auto, auto parts and precision machinery industry and exports to aerospace industry in Europe. The high level of machine tool orders is forecast for the second half of 2008. However, the JMTBA expects less chance of a recovery in capital investments in autos in the near term.

Market Entry Strategies

According to Gardner Publications, the share of imported machine tools as a percentage of consumption in Japan was 10% in 2007, far below that of the share of imports in the United States at 69%, Germany at 51%, and China at 45%.

Given the large presence of machine tool manufacturers (eight major companies produce almost 40% of the total domestic production) and many other suppliers of machine tools and related products, the Japanese market offers a highly competitive environment for imported products. However, the Japanese market also features a whole array of many types of imported machine tools, machine tool parts and accessories and related measuring and checking instruments, as seen from the member lists of Japan Machine Tool Importers' Association (JMTIA) at www.jmtia.gr.jp/.

Focused on manufacturing technology, Japanese manufacturers are keenly interested in new and innovative products that offer technology and processes unavailable in Japan. These potential end-users are also striving for cost efficiency in their manufacturing operations.

It is critical for American firms to ensure that they are capable of post-sales repair and maintenance services, which may lead to a need to search for distributors and trading firms specialized in machinery imports and possessed of service capabilities.

One way to review competitors and, at the same time, meet with potential partners is to schedule your visit to Japan during a major industry trade show, such as JIMTOF 2008, which will be held on October 30 - November 4, 2008, in Tokyo.

Market Access Issues & Obstacles

Japan levies no import duties on machine tools and machine tool accessories (HS8456, 8457, 8458, 8459, 8460, 8461, 8462, 8463) under the WTO rules. The market access issue, if any, lies in the competitive market environment the potential U.S. exporter must face when trying to enter the Japanese market, not only with domestic manufacturers but also with major imported brands already established in the market.

Language and local specifications, such as metric system (millimeter and centigrade) and voltage (50/60 Hz, single phase 100/200V, three phase 200V) in Japan may require U.S.-made products to modify to local needs.

For new-to-enter firms, it is critical to find a partnership with distributors and trading firms specialized in machinery imports and knowledgeable of local sales networks, to guide them into the potential niche market in the highly competitive environment in Japan.

Trade Events

• JIMTOF 2008 (Japan International Machine Tool Fair), October 30 - November 4, 2008, Tokyo (http://www.jimtof.org/eng/)

• INTERMOLD 2009 (Japan International Die & Mold Manufacturing Technology Exhibition), April 4-11, 2009, Tokyo (http://www.itp.gr.jp/im/)

• Micro Manufacturing Technology Show (MMTS) 2009, May 28-30, 2009, Osaka (http://nikkan-event.jp/mmts/english/index.html)

• MECT 2009 (Mechatronics Technology Japan), October 14-17, 2009, Nagoya (http://mect2007.com)

• Metal Forming & Fabricating Fair Tokyo (MF-Tokyo) 2009, October 14-17, 2009, Tokyo (http://www.nikkan.co.jp/eve/mf-tokyo)

• 2009 International Robot Exhibition, November 25 - November 28, 2009, Tokyo (http://www.irex2007.jp/ENG/index.html)

References & Key Contacts

- Japan Machine Tool Importers' Association (JMTIA), www.jmtia.gr.jp/
- Japan Machine Tool Builders' Association (JMTBA), www.jmtba.or.jp/
- Ministry of Economy, Trade and Industry (METI), www.meti.go.jp/
- Japanese Standards Association (JSA), www.jsa.or.jp/

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